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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/676,727	09/29/2000	Francis X. Canning	CANNING.001A	2872

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EXAMINER
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DAY, HERNG DER

ART UNIT	PAPER NUMBER
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2128

NOTIFICATION DATE	DELIVERY MODE
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05/29/2008

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

jcartee@kmob.com  
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<b>Office Action Summary</b>	<b>Application No.</b> 09/676,727	<b>Applicant(s)</b> CANNING, FRANCIS X.	
	<b>Examiner</b> HERNG-DER DAY	<b>Art Unit</b> 2128	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22,34 and 40-55 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22,34 and 40-55 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                       | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>2/19/08, 5/12/08</u>  | 6) <input type="checkbox"/> Other: _____                          |

### **DETAILED ACTION**

**1.** This communication is in response to Applicant's RCE and Amendments and Response ("Amendment") to Office Action dated October 17, 2007, filed February 19, 2008.

**1-1.** Claims 1, 2, 10, and 55 have been amended. Claims 36 and 37 have been canceled. Claims 1-22, 34, and 40-55 are pending.

**1-2.** Claims 1-22, 34, and 40-55 have been examined and rejected.

### ***Information Disclosure Statement***

**2.** The information disclosure statement filed February 19, 2008, fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The Cited documents No. 2-5 fail to comply with 37 CFR 1.98(a)(1), are not prior art, and the prosecution on the merits of each related application is not closed. Therefore, it has been placed in the application file, but the information referred to therein has not been considered as to the merits.

Furthermore, the listing of references in an information disclosure statement *letter* is not a proper information disclosure statement submission. 37 CFR 1.98(b) requires a list of all

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patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, “the list ... must be submitted in a separate paper.” Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

***Claim Rejections - 35 USC § 112***

- 3.** The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

- 4.** Claims 2-22 and 42-54 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**4-1.** Independent claims 2 and 10 recite the newly added limitation, “compute a physical effect” in each claim, which does not appear to have been clearly defined in the original disclosure.

**4-2.** Claims not specifically rejected above are rejected as being dependent on a rejected claim.

- 5.** The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 1, 7, 34, 40, and 41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

6-1. Claim 1 recites the amended limitation, “said computing system” in line 31 of the claim. It is vague and indefinite because it is unclear what “said computing system” is really referred to. Furthermore, if “said computing system” is referred to the “computer processor” as recited in lines 2-3, 11, and 20 of the claim, “said use on said computing system” as recited in lines 32-33 becomes indefinite because it is unclear whether “said use” is referred to “using a first rank reduction” (line 11), “using a second rank reduction” (line 20), or “using said second system of equations” (line 31). Finally, claim 1 recites, “computing a resulting electric field due, at least in part, to said plurality of said basis functions in said first group” in the last step. However, the resulting electric field appears to be already known as recited in lines 9-10 of the claim, “wherein a plurality of said basis functions in said first group describes electric fields produced by electric charge”. Accordingly, all the other steps in claim 1 seem irrelevant and redundant.

6-2. Claim 7 recites the limitations, “said first plurality of directions” in line 1 of the claim and “said second plurality of directions” in line 2 of the claim. There are insufficient antecedent basis for these limitations in the claim.

6-3. Claims not specifically rejected above are rejected as being dependent on a rejected claim.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

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Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

**8.** Claims 1-22, 34, and 40-55 are rejected under 35 U.S.C. 101 because the inventions as disclosed in claims are directed to non-statutory subject matter.

**8-1.** Claims 1-22, 34, and 40-55 are directed to the manipulation of abstract ideas of data compression, calculating composite sources and testers, and transforming system of equations. This claimed subject matter lacks a practical application of a judicial exception (abstract idea) since it fails to produce a useful, concrete, and tangible result.

As stated in the MPEP 2106 (IV)(C), “Likewise, a claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application. In other words, if the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the claim must be rejected.”, “The tangible requirement does not necessarily mean that a claim must either be tied to a particular machine or apparatus or must operate to change articles or materials to a different state or thing. However, the tangible requirement does require that the claim must recite more than a 35 U.S.C. 101 judicial exception, in that the process claim must set forth a practical application of that judicial exception to produce a real-world result. Benson, 409 U.S. at 71-72, 175 USPQ at 676-77 (invention ineligible because had “no substantial practical application.”).” and “Thus, a claim that recites a computer that solely calculates a mathematical formula (see Benson) or a computer disk that solely stores a mathematical formula is not directed to the type of subject matter eligible for patent protection.” Also, as stated in the MPEP 2106.02, “If the “acts” of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the

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foregoing, the acts are not being applied to appropriate subject matter. *Gottschalk v. Benson*, 409 U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972). Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process.”

Specifically, as described in the specification in lines 10-11 of page 6, “The terms “sources” and “physical sources” are used herein to include all types of actual and/or fictitious sources.” Therefore, the claimed subject matter is directed to the manipulation of abstract ideas including those fictitious sources (e.g., a number, formula, expression, etc.) and/or the effect of those fictitious sources. In other words, the claimed subject matter is so broad such that it does not provide or require a practical application. On the other hand, the claimed subject matter is seeking to patent substantially every application of the idea of compression of interaction data using composite sources and/or composite testers.

Furthermore, the claimed subject matter does not produce a tangible result because the claimed subject matter fails to produce a result that is limited to having real world value rather than a result that may be interpreted to be abstract in nature as, for example, a thought, a computation, or manipulated data. More specifically, the claimed subject matter includes transforming a system of linear equations to use the composite sources and/or the composite testers to produce a second system of equations and computing a resulting electric field, a physical effect, or a disturbance. This produced result remains in the abstract and, thus, fails to achieve the required status of having real world value. In other words, the claimed subject matter is so broad and may consist solely of mathematical operations, i.e., converting one set of

numbers into another set of numbers, representing sources (i.e., fictitious sources, e.g., a number, formula, expression, etc.) and/or the effect of those sources and thus nonstatutory.

### ***Claim Interpretation***

9. Independent claims 2 and 10 recite the newly added limitation, “compute a physical effect” in each claim, which does not appear to have been clearly defined in the original disclosure. For the purpose of claim examination, the Examiner will interpret “compute a physical effect” as “obtain any number(s) computed from the "sources" or "physical sources" including all types of actual and/or fictitious sources”. In other words, a physical effect may represent a fictitious effect from fictitious sources.

### ***Applicant's Arguments***

10. Applicant argues the following:

**10-1.** Response to Rejection of Claims 1-22, 34, and 40-55 Under 35 U.S.C. 101

(1) “Applicant has amended the claims to clarify their use on a computer. This satisfies the requirement for a useful, concrete and tangible result. Applicant respectfully asserts that no further justification on this issue is required”. (page 12, the last third paragraph, Amendment)

(2) “In summary regarding Examiner’s statement (II), Applicant respectfully asserts that the claimed invention has numerous practical results as described above.” (page 12, the last paragraph, Amendment)

(3) “Applicant asserts that the compression of the present application is analogous to the smooth waveform of Alappat and further asserts that computing a physical effect (whether an



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electric field, a pressure, or otherwise) is analogous to the condition of a patient's heart. Thus, Applicant asserts that, according to the MPEP, either of these alone provides a useful, concrete and tangible result." (page 13, paragraph 3, Amendment)

(4) "The specification of the present application discloses "image processing" as an application (Page 29, Line 23). Nevertheless, compression of an image is a substantial application that is not within the claimed invention. For example, Claims 2 and 10 recite "using said compressed second portion of said transformed system of equations to compute a physical effect."" (page 14, paragraph 3, Amendment)

(5) "In the case of Claim 1, that claim recites "computing a resulting electric field due, at least in part, ..." In the case of Claim 55, it recites, "physical sources comprising at least one of an electromagnetic field, a heat flux, an electric field, a magnetic field, a pressure, a sound wave, a particle flux, a weak nuclear force, a strong nuclear force, and a gravity force." Thus, image compression is a substantial application that is not preempted by either Claim 1 or Claim 55." (page 15, paragraph 3, Amendment)

(6) "stock prices or other economic data would not be a physical effect. Predictions of economic data often rely on the use of a matrix describing interactions of various economic quantities (an interaction matrix). Thus, predicting economic data would be a substantial application that is not preempted by the claimed invention." (page 15, paragraph 4, Amendment)

### ***Response to Arguments***

**11.** Applicant's arguments have been fully considered.

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**11-1.** Applicant's argument (1) is not persuasive. Applicant's argument (1) is related to overcome the rejections of "software per se". However, there exist no rejections of "software per se". Furthermore, as stated in the MPEP 2106.02, "If the "acts" of a claimed process manipulate only numbers, abstract concepts or ideas, or signals representing any of the foregoing, the acts are not being applied to appropriate subject matter. *Gottschalk v. Benson*, 409 U.S. 63, 71 - 72, 175 USPQ 673, 676 (1972). Thus, a process consisting solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, does not manipulate appropriate subject matter and thus cannot constitute a statutory process."

Specifically, the claimed subject matter is so broad and may consist solely of mathematical operations, i.e., converting one set of numbers into another set of numbers, representing sources (i.e., fictitious sources, e.g., a number, formula, expression, etc.) and/or the effect of those sources and thus nonstatutory even the use on a computer is claimed.

**11-2.** Applicant's arguments (2)-(3) are not persuasive. As stated in the MPEP 2106 (IV)(C), "Likewise, a claim that can be read so broadly as to include statutory and nonstatutory subject matter must be amended to limit the claim to a practical application. In other words, if the specification discloses a practical application of a section 101 judicial exception, but the claim is broader than the disclosure such that it does not require a practical application, then the claim must be rejected." Specifically, the claimed subject matter is directed to the manipulation of abstract ideas including those fictitious sources (e.g., a number, formula, expression, etc.,) and/or the effect of those fictitious sources. In other words, the claimed subject matter is so broad such that it does not provide or require a practical application.

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**11-3.** Applicant's arguments (4)-(6) are not persuasive. As being interpreted in item 9 above, a physical effect may be a fictitious effect from fictitious sources. Therefore, when the matrix of data generated for an image represents interaction data of any "physical source" (e.g., a fictitious source), image compression will be within the claimed invention of claims 2 and 10. On the other hand, when the image represents the disturbances (e.g., electric field) produced by the sources (e.g., charges) image compression will be within the claimed invention of claims 1 and 55. Finally, there is no evidence that fictitious sources and their fictitious effect can not represent stock prices or other economic data. Accordingly, the claimed subject matter is indeed seeking to patent substantially every application of the idea of compression of interaction data using composite sources and/or composite testers.

Furthermore, the argument, "In the case of Claim 55, it recites, "*physical sources* comprising at least one of an electromagnetic *field*, a heat flux, ..." appears to have no support in the specification. As described in the specification, page 5, lines 19-22, "Examples of sources include a moving object (such as a loudspeaker that excites sound waves in air) and an electrical current (that excites electric and magnetic fields), etc. For example, the electric currents moving on an antenna produce electromagnetic waves." In other words, source may comprise current (that excites electric and magnetic *fields*) but not the field.

### ***Conclusion***

**12.** Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Herng-der Day whose telephone number is (571) 272-3777. The Examiner can normally be reached on 9:00 - 17:30.

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Any inquiry of a general nature or relating to the status of this application should be directed to the TC 2100 Group receptionist: (571) 272-2100.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Kamini S. Shah can be reached on (571) 272-2279. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Kamini S Shah/

Supervisory Patent Examiner, Art Unit 2128

/Herng-der Day/

Examiner, Art Unit 2128

May 21, 2008